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EXAMINER	
LU, CHARLES EDWARD	

ART UNIT	PAPER NUMBER
2163	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/623,658	SHIN, HYOSEOP	
	Examiner	Art Unit	
	Charles E. Lu	2163	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 May 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *59-81* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *59-81* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *14 May 2004* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *3/18/4; 11/7/5*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 59-81 have been submitted for examination.

2. Claims 59-81 have been rejected.

Drawings

The examiner acknowledges that a set of replacement drawings was received (May 14, 2004). The figures of the replacement drawings are taken to replace the corresponding figures of the original drawings.

3. The drawings are objected to because of the following informalities:

The figures should be labeled "Prior Art" if the figures intend to represent prior art (e.g., fig. 3-8). These figures may be prior art since they appear to be described in the Background of the Invention.

The replacement specification mentions figs. 7a, 7b, 8a, and 8b (p. 25), but the replacement drawings do not appear to show these figures.

Since the lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors, Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the drawings. For example, the drawings should be carefully checked to ensure that all reference numerals and figures are described in the specification.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended

replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

The examiner acknowledges that a substitute specification was received (May 14, 2004).

4. The specification is objected to because of the following informalities:

The title of the invention is neither precise nor descriptive. A new title is required which should include, using twenty words or fewer, claimed features that differentiate the invention from the prior art. It is recommended that the title should reflect the gist of or the improvement of the present invention (e.g., TVA metadata, multi-keys, etc).

The specification should list any related applications.

In page 18, para. 55, line 1, the word "may" appears to be misspelled.

The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification. For example, the specification should be carefully checked for typographical and grammatical errors, and to ensure that all reference numerals are described in the drawings.

Appropriate corrections are required.

Double Patenting

5. Given the provisional nature of co-pending applications 10/623,621; 10/845,210; 10/845,211; 10/845,330; and 10/845,443, and the current application, double patenting will be revisited should the case be in condition for allowance sans the double patenting between the cases.

Claim Objections

6. Claim 65 is objected to because of the following informalities:

As to claim 65, line 2, the acronym "TVA" should be resolved on its first use.

Appropriate corrections are required.

Claim Rejections - 35 USC § 112

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 62 and 64 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As to claim 62, the claim does not comply with the requirements of 35 U.S.C. 112, second paragraph because the trademark or trade name is used in a claim as a limitation to identify or describe a particular material or product (i.e. X Path). *Ex parte Simpson*, 218 USPQ 1020 (Bd. App. 1982). The claim scope is uncertain since the trademark or trade name cannot be used properly to identify any particular material or product. In fact, the value of a trademark would be lost to the extent that it became descriptive of a product, rather than used as an identification of a source or origin of a product. Thus, the use of a trademark or trade name in a claim to identify or describe a material or product would not only render a claim indefinite, but would also constitute an improper use of the trademark or trade name.

As to claim 64, line 3, there is insufficient antecedent basis for the limitation "the multi-key within the fragment."

The broadest reasonable interpretation in light of the specification has been given to the claims. Art rejection of the above claims is applied as best understood in light of the rejection under 35 U.S.C. 112, second paragraph, discussed above.

Claim Rejections - 35 USC § 101

9. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

10. Claims 59-81 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

As to claim 59, the claimed index structure is descriptive material per se, and therefore non-statutory. Furthermore, there is no functional interrelationship in the index structure of claim 59.

Claims 60-68 are rejected under 35 U.S.C. 101 because of their dependency on rejected claim 59 and their failure to cure the deficiencies of claim 59.

As to claim 69, the claimed index structure is descriptive material per se, and therefore non-statutory. Furthermore, there is no functional interrelationship in the index structure of claim 69.

Claims 70-76 are rejected under 35 U.S.C. 101 because of their dependency on rejected claim 69 and their failure to cure the deficiencies of claim 69.

As to claim 77, the claimed index structure is descriptive material per se, and therefore non-statutory.

Claim 78 is rejected under 35 U.S.C. 101 because of their dependency on rejected claim 77 and their failure to cure the deficiencies of claim 77.

As to claim 79, the claim recites a computer readable medium but the medium can be interpreted as a signal (e.g., "carrier wave", page 46) and thus the claim is non-

statutory. Furthermore, there is no functional interrelationship in the data structure of claim 79.

As to claim 80, the claim recites a computer readable medium but the medium can be interpreted as a signal (e.g., "carrier wave", page 46) and thus the claim is non-statutory. Furthermore, there is no functional interrelationship in the data structure of claim 80.

As to claim 81, the claim recites a computer readable medium but the medium can be interpreted as a signal (e.g., "carrier wave", page 46) and thus the claim is non-statutory.

The art rejection of the above claims is applied in anticipation of Applicant amending the claims to overcome the rejection under 35 U.S.C. 101, discussed above.

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

12. Claims 59-81 are rejected under 35 U.S.C. 103(a) as being unpatentable over Evain ("1st Draft of Metadata Specification SP003v1.3," XP002323574), in view of Jenkins Jr. ("Jenkins," U.S. Patent 6,496,830).

As to claim 59, Evain teaches an index structure for metadata divided into fragments (fig. 2).

Evain does not expressly teach a list of multi-keys, each multi-key corresponding to a combination of fields of the metadata, and location information for defining a multi-key of the list.

However, Evain discusses indexing by two fields (title and CRID, section 2.3.1). Evain further teaches location information for defining a key (section 2.3.2). Jenkins discusses a conventional practice of creating indexes that include composite keys (example with two fields, col. 2, ll. 17-38, col. 3, ll. 5-10). Such an index is a list of multi-keys because the composite key is a combination of fields, like a multi-key (Jenkins, col. 2, ll. 17-30).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Evain with the above teachings, such that the index structure stores and manages a list of multi-keys, each multi-key corresponding to a combination of metadata fields, and location information would be provided to define the keys. The motivation would have been to improve processing of queries involving multiple column (field) constraints, as taught by Jenkins (col. 2, ll. 17-18).

As to claim 60, Evain, as modified by Jenkins, teaches comprising values of the multi key and the identification information on the metadata corresponding to the values of the multi key (see section 2.3.3 – 2.3.4).

As to claim 61, Evain, as modified by Jenkins, teaches wherein the identification information of the metadata comprises identification information on ones of the

fragments of the metadata corresponding to the values of the multi-key (the identifier in the key index list identifies the key index corresponding to the value of the identifier, fig. 2, section 2.3.2 table).

As to claim 62, Evain, as modified by Jenkins, teaches wherein the location is expressed as X Path (See syntax table in 2.3.2 and fig. 2, and the description for the table).

As to claim 63, Evain, as modified by Jenkins, teaches wherein at least a part of the location information is expressed as a predetermined code (see the program code in the syntax table in section 2.3.2).

As to claim 64, Evain, as modified by Jenkins, teaches wherein the location information comprises location information of a fragment including the multi key and location information of the multi key within the fragment (see fig. 2 and table in section 2.3.2 of identifiers).

As to claim 65, Evain, as modified by Jenkins, teaches wherein the metadata is metadata as defined by the TV Anytime Forum (e.g., section 2.2).

As to claim 66, Evain, as modified by Jenkins, teaches a sub section including ranges of values of the multi key and the identification information on ones of the fragments of the metadata corresponding to the values of the multi key (see section 2.3.3 – 2.3.4).

Evain, as modified by Jenkins, further teaches a section including representative key values representing the respective ranges of values of the key (also see section 2.3.3 – 2.3.4).

As to claim 67, Evain, as modified by Jenkins, teaches wherein each of the representative key values is a value among the corresponding range of values of the key (see section 2.3.3).

As to claim 68, Evain, as modified by Jenkins, teaches wherein the list includes identification information on the section (fig. 2, key index list has a key_index_identifier), and the section further comprises identification information on the sub section (fig. 2, key index has a sub_index_identifier).

As to claims 69 and 70, Evain teaches an index structure for metadata divided into fragments (fig. 2).

Evain does not expressly teach a list of the multi-keys.

However, Evain discusses indexing by two fields (title and CRID, section 2.3.1). Evain further teaches location information for defining a key (section 2.3.2). Jenkins discusses a conventional practice of creating indexes that include composite keys (example with two fields, col. 2, ll. 17-38, col. 3, ll. 5-10). Such an index is a list of multi-keys because the composite key is a combination of fields, like a multi-key (Jenkins, col. 2, ll. 17-30).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Evain with the above teachings, such that the index structure stores and manages a list of multi-keys, The motivation would have been to improve processing of queries involving multiple column (field) constraints, as taught by Jenkins (col. 2, ll. 17-18).

Furthermore as to claim 69, Evain, as modified by Jenkins, teaches identification information of the metadata corresponding to the values of the multi-keys, wherein the multi keys correspond to a combination of fields of the metadata (see section 2.3.2).

As to claim 71, Evain, as modified by Jenkins, teaches location information for defining the multi keys (see syntax of a key index list in section 2.3.2, table), wherein at least a part of the location information is expressed as a predetermined code (see the program code in the syntax table in section 2.3.2).

As to claim 72, Evain, as modified by Jenkins, teaches wherein the identification information of the metadata comprises identification information of ones of the fragments of the metadata corresponding to the values of the multi keys (the identifier in the key index list identifies the key index corresponding to the value of the identifier, fig. 2, section 2.3.2 table).

As to claim 73, Evain, as modified by Jenkins, teaches wherein for a multi key of the multi keys, the index structure comprises a representative values representing a predetermined ranges of values of the multi key (also see section 2.3.3 – 2.3.4).

As to claim 74, Evain, as modified by Jenkins, teaches wherein for a multi key of the multi keys the index structure further comprises a sub section including ranges of values of the multi key and the identification information on ones of the fragments of the metadata corresponding to the values of the multi key (see section 2.3.3 – 2.3.4).

Evain, as modified by Jenkins, further teaches a section comprising representative key values representing the respective ranges of values of the multi key (also see section 2.3.3 – 2.3.4).

As to claim 75, Evain does not expressly teach wherein with respect to comparison of the values of a multi key in size, the multi key comprises fields of the metadata which are prioritized and the combined fields are compared in sequence starting from a first field having a highest order of priority, wherein the values are compared on an arithmetic basis where the values of the multi key are numerical or ranked in lexicographical order where the values of the multi key are alphabetical.

However, Jenkins teaches wherein with respect to comparison of the values of a multi key in size (lexicographically or numerically), the multi key comprises fields of the metadata (e.g., grade level and student identification, col. 2, ll. 17-38) which are prioritized and the combined fields are compared in sequence (col. 2, ll. 17-38) starting from a first field having a highest order of priority (e.g., first grade level), wherein the values are compared on an arithmetic basis where the values of the multi key are numerical or ranked in lexicographical order where the values of the multi key are alphabetical (col. 2, ll. 18-39, col. 8, ll. 32-55).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Evain and Jenkins with the above teachings, such that wherein with respect to comparison of the values of a multi key in size, the multi key comprises fields of the metadata which are prioritized and the combined fields are compared in sequence starting from a first field having a highest order of priority, wherein the values are compared on an arithmetic basis where the values of the multi key are numerical or ranked in lexicographical order where the values of the multi key

are alphabetical. The motivation would have been to improve processing of queries involving multiple column (field) constraints, as taught by Jenkins (col. 2, ll. 17-18).

As to claim 76, Jenkins in the Evain/Jenkins combination teaches wherein first and second values of the multi key corresponds to (a1...an) and (b1...bn) respectively (e.g., two composite keys comprising a grade level and student id as discussed above), and the first and second multi-key values are the same size (equal, therefore one key doesn't sort higher than the other) when there is no field having a different size (col. 8, ll. 32-55).

As to claim 77, Evain teaches the following claimed subject matter:

An index structure for metadata divided into fragments (fig. 2),

A key index list section comprising a list of keys corresponding to the fields of the metadata (see key index list in fig. 2).

Evain does not expressly teach a list of multi-keys, each multi-key corresponding to a combination of fields of the metadata.

However, Evain discusses indexing by two fields (title and CRID, section 2.3.1). Jenkins discusses a conventional practice of creating indexes that include composite keys (example with two fields, col. 2, ll. 17-38, col. 3, ll. 5-10). Such an index is a list of multi-keys because the composite key is a combination of fields, like a multi-key (Jenkins, col. 2, ll. 17-30).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Evain with the above teachings, such that the index structure stores and manages a list of multi-keys, each multi-key corresponding to

a combination of metadata fields. The motivation would have been to improve processing of queries involving multiple column (field) constraints, as taught by Jenkins (col. 2, ll. 17-18).

Evain, as modified by Jenkins, further teaches a key index section (see fig. 2, key index) and sub-key index section (also see fig. 2, sub key index).

Evain, as modified by Jenkins, teaches wherein for a multi key of the key index list, the sub-key index section comprises ranges of values of the key and identification information on ones of the fragments of the metadata corresponding to the values of the key (see section 2.3.3 – 2.3.4), and wherein the key index section comprises representative values representing the ranges of the multi-key (also see section 2.3.3 – 2.3.4), because in the combination Jenkins allows the use of multi-keys, as discussed above.

As to claim 78, Evain, as modified by Jenkins, teaches wherein the key index list section further comprises location information for defining a multi key (see syntax of a key index list in section 2.3.2, table), wherein at least a part of the location information is expressed as a predetermined code (see the program code in the syntax table in section 2.3.2).

As to claim 79, Evain teaches the following claimed subject matter:

A data structure for storing an index for metadata divided into fragments (fig. 2), the index provided to search the metadata (section 2.3.1), the data structure comprising:

A list of keys corresponding to the fields of the metadata (see key index list in fig. 2) and location information for defining the multi-key (see section 2.3.2).

Evain does not expressly teach a list of multi-keys, and location information for defining the multi-key of the list.

However, Evain discusses indexing by two fields (title and CRID, section 2.3.1). Jenkins discusses a conventional practice of creating indexes that include composite keys (example with two fields, col. 2, ll. 17-38, col. 3, ll. 5-10). Such an index is a list of multi-keys because the composite key is a combination of fields, like a multi-key (Jenkins, col. 2, ll. 17-30).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Evain with the above teachings, such that the index structure stores and manages a list of multi-keys, corresponding to fields of metadata, and the location information would define multi-keys. The motivation would have been to improve processing of queries involving multiple column (field) constraints, as taught by Jenkins (col. 2, ll. 17-18).

As to claim 80, Evain teaches the following claimed subject matter:

A data structure for storing an index for metadata divided into fragments (fig. 2), the index provided to search the metadata (section 2.3.1), the data structure comprising:

Values of keys (fig. 2, section 2.3.1-2.3.2).

Evain does not expressly teach multi-keys.

However, Evain discusses indexing by two fields (title and CRID, section 2.3.1). Jenkins discusses a conventional practice of creating indexes that include composite keys (example with two fields, col. 2, ll. 17-38, col. 3, ll. 5-10). Such an index is a list of multi-keys because the composite key is a combination of fields, like a multi-key (Jenkins, col. 2, ll. 17-30).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Evain with the above teachings, such that the index structure stores and manages a list of multi-keys. The motivation would have been to improve processing of queries involving multiple column (field) constraints, as taught by Jenkins (col. 2, ll. 17-18).

Evain, as modified by Jenkins, teaches identification information on the metadata corresponding to the values of the multi keys (identifiers, again see fig. 2, and section 2.3.2 table), because in the combination Jenkins allows the use of multi-keys, as discussed above.

As to claim 81, Evain teaches the following claimed subject matter:

A data structure for storing an index for metadata divided into fragments (fig. 2), the index provided to search the metadata (section 2.3.1), the data structure comprising:

A key index list section comprising a list of keys corresponding to the fields of the metadata (see key index list in fig. 2).

Evain does not expressly teach a list of multi-keys, each multi-key corresponding to a combination of fields of the metadata.

However, Evain discusses indexing by two fields (title and CRID, section 2.3.1). Jenkins discusses a conventional practice of creating indexes that include composite keys (example with two fields, col. 2, ll. 17-38, col. 3, ll. 5-10). Such an index is a list of multi-keys because the composite key is a combination of fields, like a multi-key (Jenkins, col. 2, ll. 17-30).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Evain with the above teachings, such that the index structure stores and manages a list of multi-keys, each multi-key corresponding to a combination of metadata fields. The motivation would have been to improve processing of queries involving multiple column (field) constraints, as taught by Jenkins (col. 2, ll. 17-18).

Evain, as modified by Jenkins, further teaches a key index section (see fig. 2, key index) and sub-key index section (also see fig. 2, sub key index).

Evain, as modified by Jenkins, teaches wherein for a multi key of the key index list, the sub-key index section comprises ranges of values of the key and identification information on ones of the fragments of the metadata corresponding to the values of the key (see section 2.3.3 – 2.3.4), and wherein the key index section comprises representative values representing the ranges of the multi-key (also see section 2.3.3 – 2.3.4), because in the combination Jenkins allows the use of multi-keys, as discussed above.

Conclusion

13. The following prior art cited on the PTO-892 form, not relied upon, is considered pertinent to applicant's disclosure:

Goldberg et al. U.S. Patent 5,655,117 discloses a method and apparatus for indexing multimedia information streams.

Eldering et al. Pub. No. 2002/0123928 discloses targeting ads to subscribers based on privacy-protected subscriber profiles.

Qian, Richard. Pub. No. 2002/0184195 discloses integrating content from media sources.

Sarkar, Shyam. U.S. Patent 6,418,448 discloses a method and apparatus for processing markup language specifications for data and metadata used inside multiple related internet documents to navigate, query, and manipulate information from a plurality of object relational databases over the web.

Wang et al. Pub. No. 2002/0174147 discloses a system and method for transcoding information for an audio or limited display user interface.

IBM_TDB. "EC XML Parser for Parsing XML Into Java Hashtable." August 1, 2000.

Yoshikawa et al. "X Rel: A Path-Based Approach to Storage and Retrieval of XML Documents Using Relational Databases." ACM Transactions on Internet Technology, Vol. 1, No. 1, August 2001. © 2001 ACM.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charles E. Lu whose telephone number is (571) 272-8594. The examiner can normally be reached on 8:30 - 5:00; M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Safet Metjahic can be reached on (571) 272-4023. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

CL
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1/30/2006

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PRIMARY EXAMINER